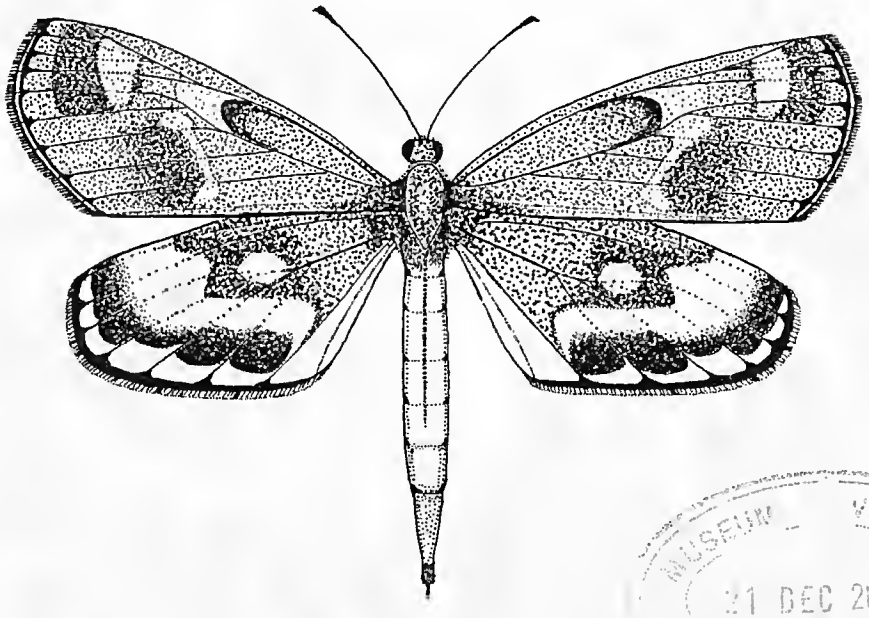
VICTORIAN ENTOMOLOGIST

VOL . 36 No. 5 OCTOBER 2006

Print Post Approved PP 349018/00058 Price: $ 3.00



News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

(a) to stimulate the scientific study and discussion of all aspects of entomology,
(b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
(c) to compile a comprehensive list of all Victorian insect species,
(d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at the 'Discovery Centre', Lower Ground Floor, Museum Victoria, Carlton Gardens, Melway reference Map 43 K5 at 8 p.m. on the third Friday of even months, with the exception of the December meeting which is held on the second Friday. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	$20.00 (overseas members $22)
Country Member	$16.00 (Over 100 km from GPO Melbourne)
Student Member	$12.00
Associate Member	$ 5.00 (No News Bulletin)

Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

LIFE MEMBERS: P. Carwardine, Dr. R. Field, D. Holmes, Dr. T. New, Dr. K. Walker.

Cover design by Alan Hyman.

Cover illustration: The pale Sun Moth, *Synemon selene* Klug, is an endangered species restricted to perennial grassland dominated by *Austrodanthonia* in Western Victoria. It is now extinct in SA, and was presumed extinct in Vic. until its rediscovery, in February 1991, by the late Frank Noelker and Fabian Douglas. The Victorian Populations are parthenogenetic with all specimens comprising females, a most unusual trait in the Castniidae. Illustration by Michael F. Braby.

MINUTES OF THE GENERAL MEETING 18 AUGUST 2006

The meeting was opened at 8:04pm

Present: I. Endersby, K. Gosbell, P. Marriott, D. Stewart, G. Weeks

Visitors: M. Endersby

Apologies: P. Carwardine, S. Curle, D. Dobrosak, D. Rogers, K. Walker

Minutes: Minutes of the 16 June 2006 General Meeting [*Vic. Ent.* 36(4): 61,71] were accepted M: Marriott; S: Endersby, subject to D. Stewart being included as an apology

General Business:

- Steve Curle and Tony Curran were elected to Membership. An application has been received from Luke Watson.

- The president raised the question of whether a change of meeting night from Friday might allow more members to attend the general meetings.

Finance Report:

General Account $7033, Le Souëf Award Account $4744. 19 members are still unfinancial.

Speaker:

Ian Endersby gave an illustrated talk on aquatic insects including: characteristics of aquatic environments and the morphological and behavioural responses invertebrates have adopted to cope; an overview of the major aquatic orders and functional guilds; and the use of invertebrates to assess the health of aquatic environments.

Ken Gosbell showed a series of photographs of adult dragonflies taken recently in the Northern Territory.

Next meeting:

A visit to the aquatic collection of the Arthur Rylah Institute at 123 Brown Street Heidelberg.

The meeting was closed at 9:42pm

MINUTES OF THE COUNCILLOR'S MEETING 15 SEPTEMBER 2006

Meeting opened at 5.14 pm

Present: I. Endersby, D. Dobrosak, P. Marriott, K. Walker.

Apologies: D. Stewart, P. Carwardine

Treasurer's Report:
General Account: $7033 Le Souëf Account: $4744. There are 18 members still unfinancial.
A letter is to be sent to unfinancial members informing them that they will not receive any further issues of the news bulletin until their subscription is received.

Editor's Report:
The editor reported that sufficient articles have been received for the the October issue. This issue will include two pages of photographs in colour.

General Business:

- David Holmes' reprints have been indexed and will be lodged at Museum Victoria.
- Ian Endersby is continuing with scanning 'Wings and Stings' using Optical Character Recognition. This will enable the articles to be 'text' searchable. When completed, the entire 'Wings and Stings' issues may be copied onto CD for sale to interested readers.
- The October Meeting will be at the Arthur Rylah Institute for Environmental Research, 123 Brown Street Heidelberg hosted by Di Crother. The Field Naturalists microscopical group will also attend.
- Councillors discussed the speaker program for next year.
- December meeting - please contact council members to advise what you intent to present or talk on. As this is our end of year meeting, please bring a plate. Tea and Coffee will be provided.
- After reviewing the results of the last member survey, the General meeting and Council meeting night will be changed from Fridays to Tuesdays from 2007.

The meeting was closed at 6.07pm

Observations on Two Australian Hesperiine Skippers Fluid-recycling to obtain Nutrients (Hesperiinae: Lepidoptera) – Errata

The editor apologies to the authors and readers for incorrectly transcribing the text of the paper submitted on 'Observations on Two Australian Hesperiine Skippers Fluid-recycling to obtain Nutrients (Hesperiinae: Lepidoptera)' *Victorian Entomologist* 36(4): 70-71. The corrections are shown below:

The title should read…' to obtain Nutrients (Hesperiinae: Lepidoptera)'

The second author was omitted: Geoff Walker 2/88 Dalny Road, Murrumbeena, Victoria. 3163.

The 'Abstract' (first line) should read 'The first records of two species from the genera….'

The 'Observations' (third line) should read 'The observations lasted….'

The 'Observations' (eleventh line) should read 'The hesperiines were not observed to fly off to fresh water sources for replenishment purposes that enables a repeat drinking process that….'

Excursion To Arthur Rylah Research Institute -20 October 2006

The Arthur Rylah Research Institute is on the corner of Brown Street and Stradbroke Avenue, Heidelberg. Melway 31 K3. Note that there is no access to Brown Street from Upper Heidelberg Road.

Meet at 8.00pm sharp.

There is parking within the grounds of the Institute.

Australian Journal of Entomology 45 (2), May 2006

The Australian Entomological Society publishes the *Australian Journal of Entomology* quarterly. The Entomological Society of Victoria is an affiliated society and will, in future, publish the contents of the Journal for the wider interest of its members.

ECOLOGY

Heather Proctor and Andrew Grigg: Aquatic invertebrates in final void water bodies at an open-cut coal mine in central Queensland

Mark S Hoddle, Christina D Stosic & Laurence A Mound Populations of North American bean thrips, *Caliothrips fasciatus* (Pergande) (Thysanoptera: Thripidae: Panchaetothripinae) not detected in Australia

Susan C Baker: A comparison of litter beetle assemblages (Coleoptera) in mature and recently clearfelled *Eucalyptus obliqua* forest

Andrew B Hingston, Walter Herrmann & Gregory J Jordan: Reproductive success of a colony of the introduced bumblebee *Bombus terrestris* (L.) (Hymenoptera: Apidae) in a Tasmanian National Park

SYSTEMATICS

Cate Paull & Andrew D Austin: The hymenopteran parasitoids of light brown apple moth. *Epiphyas postvittana* (Walker) (Lepidoptera: Tortricidae) in Australia

A Stuart Gilchrist & Alison E Ling: DNA microsatellite analysis of naturally occurring colour intermediates between *Bactrocera tryoni* (Froggatt) and *Bactrocera neohumeralis* (Hardy) (Diptera: Tephritidae)

Graeme B Smith: New species of *Metrinura* Mendes (Zygentoma: Nicoletiidae) from Queensland, Australia

Zdzislawa T Stebnicka: Revision of the Indo-Australian genus *Cnematoplatys* Schmidt with description of a new species from Queensland (Coleoptera: Scarabaeidae: Aphodiinae: Eupariini)

INSECT BIOCONTROL

Claire J Stephens, Nancy A Schellhorn, Glenys M Wood & Andrew D Austin: Parasitic wasp assemblages associated with native and weedy plant species in an agricultural landscape

Notes on the Life History of *Lucia Limbaria* (Swainson, 1833) in South Australia

L. HUNT

2 Chelmsford Ave, Mitcham, S.A. 5062

Introduction

Lucia limbaria was once not uncommon on the Adelaide plains (Fisher, 1978) but is now rare in the Adelaide region. It has now been recorded from the lower and upper South-East (Grund and Hunt, 2000; K. Alcock), Mt Lofty Ranges, north-west into the southern Flinders Ranges (M. Moore) and historically from Yorke Peninsula but is still regarded as rare. The distribution areas share a temperate climate of warm to hot dry summers and cool to cold wet winters varying in average annual rainfall from 700mm to 350mm (south to north) and mean summer temperature from 23°C to 32°C.

The main foodplant *Oxalis perennans*, a low spreading forb, is a hardy plant which occurs widely in and beyond the recorded butterfly distribution areas. It can become more abundant after clearing and can also do well in areas which are subject to low or moderate levels of grazing but is choked by thick pastures, especially those consisting mainly of introduced species (and some openness of grass structure is necessary for good ant activity). It can therefore be more prominent and available to butterflies in rocky or degraded areas, steep hillsides or lower rainfall zones. *O. perennans* dies off above ground when moisture levels become too low but the thick roots remain alive and reshoot when soil moisture rises sufficiently. The very similar *O. corniculata*, an introduced weed, is also readily accepted as a food plant.

The observations summarised in this paper were mostly made between 1994 and 2000 on the author's property on the eastern edge of the Mount Lofty Ranges near Woodchester in a 490mm rainfall zone. In this mainly grazed area *Oxalis perennans* occurs in discrete patches, many of which are small, but in favourable conditions may be 50 cm across and even occasionally suppress the growth of the grasses around it. It was on such a patch that *L.limbaria* activity was first observed and the patch was used repeatedly over some years. A major part of the observation was done in a small area cleared of pasture plants to grow vegetables. The butterfly was found to be breeding on small oxalis plants that came up, hence these were allowed to grow and competition from other plants was reduced to a minimum. This led to discrete patches of oxalis surrounded by bare earth, a situation very favourable to the ants. The butterfly bred continuously in the area for seven years. The oxalis was also eaten (sometimes defoliated) by moth larvae which constructed silk tunnels and this, along with variable pressure from the butterfly larvae and the variable response of the oxalis to summer rain events, complicated observation. From time to time breeding activity was also found and observed on scattered small oxalis patches amongst the pasture. The species was also bred in captivity from eggs and this proved straightforward despite the absence of ants.

Summary of Observations

The main adult flight period was from mid October tailing off towards mid November. Later flying times in summer and autumn were variable and are discussed in more detail below. The butterflies generally fly close to the ground settling on grass and herbs, feeding from small flowers including those of their foodplant. Males display their superb metallic copper colouring when they open their wings to warm up in the sun. Both sexes also frequent breeding areas where

the males take up territorial positions and chase rivals or passing Grass-Blues and seek out females. Here also the females will rest for hours when not engaged in mating, feeding or egg laying activities, or even stay overnight. A female intending to oviposit often flies to a position near an ant hole which has been the centre of some previous or current activity by ants and larvae. She is unhurried and may sit for 10 or 15 minutes on the ground or the oxalis before walking into and around in the foodplant, usually selecting a good leaf in the lower parts of the spring foliage. The egg laying process is slow and laborious, not only because the single layered but tightly clustered groups of eggs usually number between two and twenty (often between 10 and 16) at this time of year, but because she also deposits what is almost certainly hairs from her body onto the eggs. Eggs are more often laid on the underside of a leaf but are also regularly deposited on an upper side or vertical face. They are always a pale shade of blue. Eggs may be laid on any healthy (often small) oxalis patch where a suitable *Iridomyrmex* ant species is present but overall only a very small fraction of oxalis plants is utilised (at least two different ant species from this genus were involved on this property). The female is greatly advantaged in this operation by her complete immunity to ant attack. On numerous occasions butterflies were observed sitting at length close to ant streams, near ant holes or in other areas of high ant activity. Ants walk up to the butterfly, touch it with their antennae and simply turn and walk away. Male adults also have this immunity.

Eggs hatch in about two weeks in the field. Newly emerged larvae, often grouped together, soon eat, producing characteristic scour marks, but separate within a few days and each command the attention, at least sporadically, of a single ant. They then move down to the ground, not carried or even apparently guided by the ants, but seem instinctively to find their way to the ant hole and go down. Sometimes there is no ant hole close and the young larvae may sit in a depression in the soil for up to a week, but the ants soon construct a hole to accommodate them. By late in the first instar they are eating sections of leaves. More mature larvae eat multiple leaves in one session and also eat flowers. As the larvae grow they are attended by an increasing number of ants - about three in the second instar and up to 12 in the final instar. The ants not only pay attention to the three excretory organs at the rear but also to the heads (especially) and bodies of the larvae. When a number of late instar larvae are out feeding on a patch the latter can be swarming with ants which seem to go into a frenzy. The larvae feed in the temperate parts of the day; in summer usually mid morning for about one and a half hours and mid to late afternoon for a longer period, whereas in spring and autumn they feed in the middle of the day. They emerge from the ant hole and feed as individuals, accompanied only by the ants, although they tend to feed in the same area near the ant hole if possible. Larvae were not observed to feed at night (the *Iridomyrmex* ants are not very night-active). If the food supply becomes low they can move up to 70 cm away from the ant hole, even across bare ground, and hesitatingly but unerringly return to the ant hole they came from. Throughout the season the location of ant holes and larval feeding activity may change appreciably; for example in August when temperatures are still cold, if the oxalis is thick, larvae move out to the edges to feed where there is more warmth from direct sunlight and also the adjacent bare earth and the ants construct tunnels at the edges. There were always ant-streams interconnecting the various oxalis patches even if no larvae were present (as if to 'invite' their host).

The oxalis usually begins to deteriorate by late November: the leaves die first leaving green stems and seed capsules but eventually everything above ground is dead (the thick roots remain alive). The larvae grow rapidly at first then increasingly slowly as the foodplant deteriorates, spending increasing amounts of time wandering around searching. As the leaves die off, larvae turn to eating soft stems and the outer layer of seed capsules. Later again they are reduced to eating the outer layer of old stems. The most frequent observation of the summer months is to see larvae randomly and usually unsuccessfully searching for food. This can go on for three, even four months with the oxalis looking dead but usually during this period there has been a few rain

events causing the production of shoots. These are found and eaten off while small so that the larvae glean enough to survive but deny themselves a longer term food supply. If regrowth is more than sufficient for the number of larvae on a patch the life cycle is completed rapidly.

Because larvae grow rapidly in spring, those from mid October eggs attain a larger size than those from mid November eggs by the time the foodplant starts to decline. By early or mid December the plants are often in serious decline and the larvae in survival mode - some may be second instar while others may be fourth. Because of this, and the fact that larvae on different patches may fare very differently, it is usual during summer and autumn to have many or even all stages present together in an area. Even though adults may have been produced on the best patches and laid eggs, larvae of varying sizes will still be present elsewhere. As the weather and ground cool in autumn the oxalis is more likely to shoot in a sustained way and allow remaining spring larvae to mature. It was concluded from a number of observations, however, that in some years a proportion of the larvae take a full year to produce adults: in 1999 there were half grown larvae, judged to be from spring eggs, active in April and in 1996 large (spring) larvae were feeding in early May. These would probably have overwintered as pupae.

Following the spring flight adults may appear again between January and April but most reliably in autumn. There may be discreet flight periods or low numbers may be present over several months. Given appropriate abnormal summer rains it would be possible for a second summer generation.

In summer and autumn females lay small groups of eggs (2-6) on fresh growths of only a few leaves near the ground. The resulting larvae are often only first or second instar going into winter but are usually accompanied by larger larvae. They feed actively into May when foodplant becomes plentiful but grow only very slowly over the winter. Feeding activity resumes at least from early August when larvae still show wide variation in size but in September, with more heat energy and abundant foodplant, growth is rapid and maturation converges so that most feeding activity ceases by early October with many pupae now lying in the underground ant chambers. Emergent butterflies push through the small ant nest openings, wings still crumpled, and sit on or near the hole to expand their wings, even blocking the entrance to ant traffic but completely immune to ant attack. They may then walk away a little and sit for an hour or more before mobilising. Emergence in summer is usually about ten o'clock in the morning. One female observed mated on the patch one hour after coming through the ant hole. The two were joined for less than ten minutes when the male flew off. The short 12 day pupation time (see below) usually means the food plant condition that allowed the larvae to mature still prevails for the adults to lay eggs and the young larvae to at least get a start.

In 1997 there were exceptional rains in November and December and some (but not all) colonised oxalis patches produced adults again by the 10th December (and throughout December and early January). This means the full life cycle was completed in just two months! In this year there was no significant autumn flight.

In the spring of 1996 many eggs were laid on the oxalis in the cleared area. This soon began to deteriorate alarmingly as it became apparent that the patches were severely overpopulated. In early December 226 larvae were removed from quite a small area of oxalis and relocated. The remaining larvae were soon reduced to eating the outer layers from old stalks and growth stagnated but larvae on the patches with fewer individuals did better. In early January a sick-looking larva was attacked by the attendant ants and several were seen sheltering in debris with no ants attending. Subsequently a larva was seen digging into the soil in the oxalis patch with ants appearing to carry away loose soil grains but over the next six weeks inactive larvae with

their heads buried in the soil and largely unattended by ants were seen regularly. This behaviour remains puzzling; there was no clear evidence that they were digging for oxalis roots so it may have been that some protection was afforded by it. Larvae of abnormal appearance with dirt adhering to them were also seen. One unattended larva was carried off in the jaws of a larger ant species. Obviously when the larvae became stressed through lack of food they lost some of their attraction to the ants, presumably because of a decrease in the ant-attracting biochemical secretions, making them more prone to attack. Nevertheless a reduced number of larvae survived on most patches and with rain some of these reached maturity in late February and March. The events of that summer demonstrate how females are attracted to areas where the combined smell of foodplant, ants and most probably previous and current breeding activity of their own kind is a powerful attractant (on another occasion a female was seen crawling through a breeding patch of almost dead oxalis searching for a place to oviposit). Without intervention there would have been high mortality but in any event a small percentage of larvae would probably have survived. Some of the relocated larvae were put in two places on *O. corniculata* which had taken over part of a lawn in a foothills suburb of Adelaide. Although the original ant density was low, they found the larvae and constructed holes in both places to accommodate them! These larvae went through to maturity.

The incidence of parasitisation in the population over the entire observation period was extremely low with only one parasitised larva observed. The parasite was from the *Ichneumonidae* family.

In captivity a batch of 6 eggs all hatched on day 13. Larvae had a strong tendency to group together throughout the lifecycle and even group with pre-pupae and pupae. Shed skins were not eaten. Larval duration was 4-6 weeks and full life cycle 2-2½ months. Pupae were attached rather loosely at the rear end only. The pupation period was a remarkably constant 11-13 days in summer. Fourth instar larvae deprived of fresh food lived for about 4 weeks by which time they had shrunk from 12mm to about 4mm and were almost incapable of eating. They did not go into diapause but generally moved about each day. At least some underwent skin changes during starvation and they still tended to group together. One large larva which grouped with a pre-pupa whilst undergoing its final instar change (to 5th) was disinclined to begin eating again. It was offered food once but appeared not to eat and continued for eight weeks without food, shrinking appreciably. It began to eat normally again after this time when offered food. This larva became very large; it did not pupate until some 2½ months later than those with uninterrupted food supply, forming a very large pupa and emerging a large bodied female 12 days later. Duration of the larval period was 4 months and the total life cycle 5 months. At no stage was any carnivorous activity observed in either fully fed or starved larvae.

Discussion

The weight of field evidence suggests that larvae do not go into diapause for long periods of time. Several observations, however, suggested that they could remain inactive for about six weeks, most significantly the finding of larvae in an ant chamber below a small dead oxalis patch on which no activity had been observed for six weeks. On several occasions all activity of not yet mature larvae on a patch ceased and was not seen to resume. Along with the stressed and sickly larvae observed in 1997 the most likely conclusion is that they can reach the limits of their survival after about seven weeks in very harsh conditions. Observations of starved captive larvae tended to confirm the conclusion from field observation, noting that the conditions the captive larvae were kept in could not replicate field conditions. The deduction is that the main strategy for survival is to obtain at least small amounts of food at irregular intervals while also having the ability to starve for periods and to radically moderate growth rates and delay maturation. It is possible, as suggested by the single observation above, that 5th instar larvae can survive longer than earlier instars. It is also still possible that in the field other food sources are invoked, but the effort *L. limbaria* larvae put into finding oxalis to eat suggests that these would be minimal.

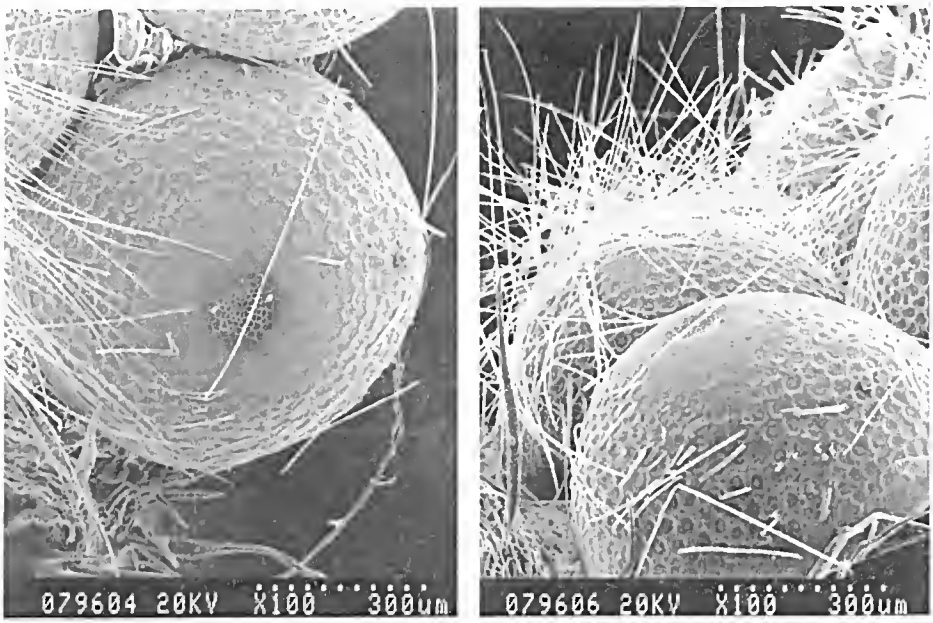
Concluding comments.

Note that flight and other times given above will vary somewhat from the southerly to the northerly parts of the range.
Some of the above material has been included in Braby (2000) but it was thought useful to publish in full after exhaustive re-examination of all the information recorded.
While much of the observation focused on areas to which the butterfly returned repeatedly, transient breeding activity was observed on other small oxalis patches and, considering their multiplicity, these probably account for most of the breeding. Niche environments in which the oxalis grows better and longer into the summer would provide a breeding reservoir for an area and a fall-back in years of low rainfall. Under abnormal highly favourable summer conditions (especially regular rainfall) large numbers of adults could be produced. It is clear that this small species is capable of dispersing over significant distances. It is likely that the South Australian distribution is more extensive than that presently recorded. Elsewhere in Australia the species copes with even more severe weather conditions, particularly long cold winters. This superb little butterfly has a complex and fascinating life history, allowing it to adapt to a wide range of conditions.

References

Braby, M.F., 2000. *Butterflies of Australia. Vol. I & II.* 976pp. CSIRO Publishing, Melbourne.
Fisher, R.H., 1978. *Butterflies of South Australia.* 272 pp. 16 pls, Government Printer : Adelaide.
Grund, R. & Hunt, L., 2000. *Butterfly Conservation in the Lower South-east Region.*129pp. National Parks Foundation of South Australia Inc. (also on CD-Rom)

The following photographs were provided by the author and show the life stages of *Lucia limbaria.*



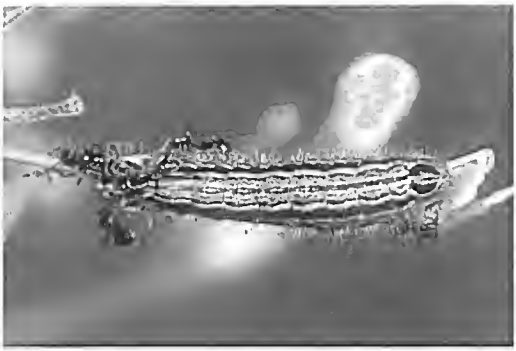
Lucia limbaria eggs. Electron microscopy by J. Brealey

Egg group. Individual egg size 0.78mm diameter 0.42mm high

First Instar larva 3mm long

2nd Instar larva

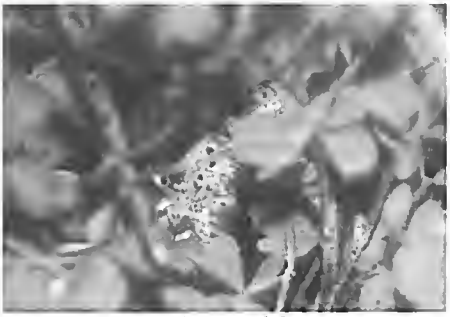
Late instar larva searching for food amoung dead stalks



Mature larva feeding on flowers

Mature larva entering ant hole

Pupa, prepupa and larva



Egg laying within foliage of *O. perennans*

Lucia limbaria Male

Lucia limbaria Male

Lucia limbaria Female

Lucia limbaria Female

New Butterfly Distribution Records for the Lower South East Region of South Australia

Bryan T. Haywood

ForestrySA - PO Box 162, Mt Gambier, SA, 5290

Abstract

Information is provided on new distribution records for the Silver xenica *Oreixenica lathoniella herceus* Waterhouse and Lyell, Grassland copper *Lucia limbaria* (Swainson), Blotched dusky blue *Candalides acasta* (Cox) and Sword-grass brown *Tisiphone abeona* (Donovan) in the lower south east region of South Australia. Recent records for *O. lathoniella herceus, L. limbaria* and *C. acasta* are southerly and/or westerly extensions to their known range in South Australia.

Introduction

The butterflies of the lower south east region of South Australia have been well documented in recent times (Grund and Hunt, 2000; Braby, 2000; Grund and Haywood 2005; Grund, 2006). This report aims to update current knowledge for the above four species on their distributions, confirmation of *T. abeona* presence at suitable sites, and habitat preference for *O.lathoniella herceus, L. limbaria* and *C. acasta* from recent observations by the author and others since November 2005.

Grund and Hunt (2000) provided the lower south east region of South Australia with an extensive report on the species present, their habitat preferences and known distributions at that time. They reported previously unknown records for *L. limbaria* and *C. acasta* at the very southern end of their range in South Australia, and confirmed an earlier record of *O. lathoniella herceus* for the State.

Observations and Discussion

NYMPHALIDAE

Silver xenica *Oreixenica lathoniella herceus* Waterhouse and Lyell

O. lathoniella herceus was first recorded in South Australia in 1979 (G Gross) at Piccaninnie Ponds Conservation Park and was subsequently reported by Grund and Hunt (2000) in 1999. The author discovered a relatively widespread colony in the Honan and Kangaroo Flat Native Forest Reserves (15 km NW of Mt Gambier) in March 2006. This sighting is the first inland record for South Australia and is the most westerly extent of this species known range in Australia. Braby (2000) and Sands and New (2002) described the habitat of *O. lathoniella herceus* as cool sites of high rainfall associated with grasses and open grassy woodlands. This description is consistent with recent observations near Glencoe where this species was found in *Eucalyptus ovata* grassy woodland and wet heathland. Host plants of *Poa labillardieri, Microlaena stipoides* and other native grass species were present in this habitat (See Plate 1).

Plate 1 – Habitat of the Silver Xenica inland South Australia

O. lathoniella herceus is known to the tablelands and mountains of New South Wales, and ACT, the mountains and coastal areas of Victoria and Tasmania, and the far south east corner of South Australia (Braby, 2000; Grund, 2006; and Sands and New, 2002). *O. lathoniella hercens* is documented as being the most widespread of its genus on the mainland with three further sub-species restricted to Tasmania.

O. lathoniella herceus is very variable across its range and is larger than the nominate *O. lathoniella* (Westwood). *O. l. hercens* is darker on the upperside with the orange markings restricted and the underside is richer and brighter in appearance (Braby, 2000). The description of the individuals observed at the site is consistent with that described in Braby (2000) (see Plates 2 and 3).

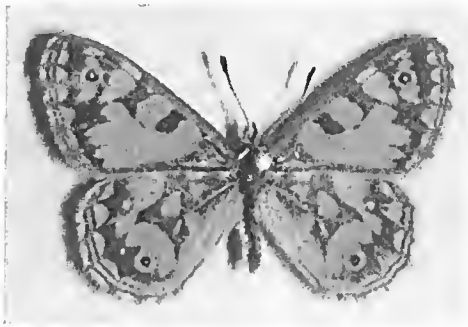


Plate 2 – Upperside of Silver Xenica

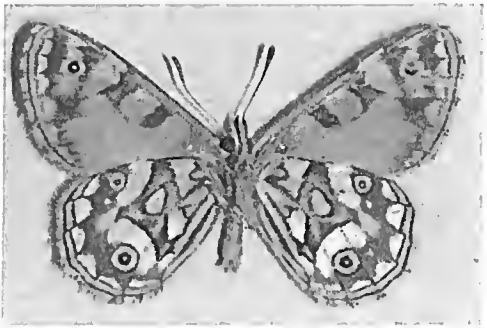


Plate 3 - Underside of Silver Xenica

Wetland drainage, wildfire, woody weeds and cattle grazing have been identified as threatening processes towards the long-term survival of this species in South Australia (Grund, 2006). In this State, the coastal habitats where *O. lathoniella herceus* may occur are now severely degraded and fragmented so alterations to hydrology and burning programs in potential habitat areas should be closely scrutinised before permission is granted. Further colonies of this species are likely to be found where *E. ovata/viminalis* over *Poa* grasses exists.

As outlined in Sands and New (2002) further surveys should be undertaken in South Australia to ascertain whether new populations can be found along with searches for other rare satyrines namely *Heteronympha cordace wilsoni* Burns and *Oreixenica kershawi kanunda* Tindale.

Sword-grass brown *Tisiphone abeona* (Donovan)

Grund and Haywood (2005) previously detailed the known presence of *T. abeona* in the lower south east region with reference to each sites level of protection. Their table has been updated with numerous observations made from November 2005 to February 2006 (see Table 1). Pick's Swamp which was previously documented as 'Under Threat' (UT) has recently been added to the South Australian National Parks system and now forms part of the Piccaninnie Ponds wetland complex. Further new *Gahnia clarkei* sites have been added to the Mt Burr Range list including Wattle Range Dump, Clay Pans, and Kangaroo Flat Native Forest Reserve. *T. abeona* was observed at these new sites as shown. Further surveys should be undertaken in the three other coastal sub-population areas to better understand if *T. abeona* exists and to further document current threats.

Sub-population	Location of *Gahnia clarkei*	Bachmann (2002) Site Reference	Presence of *Tisiphone abeona* (incl. source)		Protection levels for site Under Threat (UT) or Protected (P)
			1	2	
Coastal springs					
	Piccaninnie Ponds CP	53			P
	Pick's Swamp	52			P
	Green Point - Stoney Creek	51			P
	Ewens Ponds CP/ Eight Mile Creek	50 & 49	X (a)	X	P
	Ningana Springs/Tilley/Cress Creek	48, 47 & 46	X		P
	Germein Reserve/Clarke's Park	44	X	X	P
	Cape Douglas/Winterfield Creek	43 & 42			P/UT
	Nene Valley Springs/Wetland	41 & 40			P
	Blackfellows Caves Wetland	37 & 36			P/UT
	Benara/German Creek	33			Unknown
Mt Burr Range					
	Honan NFR		X		P
	Kangaroo Flat NFR		X		P
	Mt Lyon/Clay Pans		X		P
	Woolwash NFR		X	X	P
	Long NFR		X (b)		P
	McRosties NFR		X		P
	Overland Track NFR				P
	Mt McIntyre NFR		X		P
	Whennans NFR		X		P
	The Marshes NFR		X	X	P
	Lake Edward		X	X	P
	Lake Leake		X	X	P/UT
	Wattle Range Dump (Mile Hill Road)		X		P/UT
Canunda					
	Canunda Flat (Spring Hill/North)	28 & 27			P/UT
	Canunda NP/Lake Frome CP	26	X	X	P
	Woakwine Springs/Mullins Swamp	25			P
	Burks Island	21			UT
	Lake Bonney (north-west)	30			P
Robe					
	Lake St Clair CP (No *Gahnia clarkei*)	19 & 18	X		P
	Lake Eliza (The Springs)	15			UT
	Little Dip CP				P
	Guichen Bay Wetland	10		X	P
	West Dairy Range - Pomanda	4			P

NP	National Park	Source:	X = Sword-grass Brown records
CP	Conservation Park	1	B.T. Haywood (2003-06)
NFR	Native Forest Reserve	2	Fisher and Watts (1994), Grund and Hunt (2000), and R Grund.
P	Protected		
UT	Under Threat	(a)	R Mengler (Dec 2005)
		(b)	S Black (Dec 2005)

Table 1 - Summary of Sword-grass Brown and *Gahnia clarkei* sites in SA

LYCANIDAE

Grassland copper *Lucia limbaria* (Swainson)

L. limbaria as shown in Braby (2000) occurs throughout the mid north of South Australia Wimmera and central Victoria with no natural links via populations in the upper south east of SA. Grund (1997) however reported *L. limbaria* occurring in this district (5km N of Wolseley) in the upper south east of South Australia in the 1940's as does the Dunn and Dunn butterfly database. It is unknown whether it still occurs there.

New sites outside this previous known range have come from Grund and Hunt (2000) where they found *L. limbaria* in the lower south east of South Australia in coastal grassland/woodland near Carpenter Rocks (30km SW of Mt Gambier). A subsequent colony has since been found by the author in the Dry Creek Native Forest Reserve (25 km SE of Mt Gambier) also in native grassland [37'58"E, 140'57"N] (see Plate 4 & 5).

Plate 4 – Grassland copper at Dry Creek NFR

Plate 5 – Habitat of Grassland copper at Dry Creek NFR

Although the new site is somewhat degraded it has a large expanse of *Oxalis perennans* closely associated with *Poa labillardieri*, where it occurs on shallow soil over limestone and is a protected reserve (see Plate 5). The Carpenter Rocks site in comparison was a similar grassland to Dry Creek (shallow soil over limestone) however when consulting historic and recent aerial photographs this site now displays a coastal shrubland habitat. The original grassland appears to now being overtaken by shrubbery especially *Acacia longifolia sophorae*, *Leucopogon parviflorus* and other coastal trees and shrubs. Much of the area is now under conservation covenant or is part of the South Australian National Parks system, however needs to be managed as an ecotone from native grassland to coastal *Eucalypt/Allocasuarina* woodland which is currently not the case.

I consulted the Dunn and Dunn butterfly database to discover there are no records from south west Victoria for *L. limbaria* despite their possibly being areas of similar habitat. Further searches in other appropriate sites both in SA and Victoria maybe warranted as it appears this species is not common in the lower south east of SA but is so in the mid north of the State where it has been well studied (Fisher, 1978; Grund 2006).

Blotched dusky blue *Candalides acasta* (Cox)

Grund and Hunt (2000) reported that *C. acasta* occurs in a small Stringybark heathland reserve (Penola Conservation Park) 15 km west of Penola in the lower south east representing the most southerly record

in South Australia for that time. A new colony has since been found by the author in the Nangwarry Native Forest Reserve in February 2006 flying amongst food plant (*Cassytha sp.*) in various compartments throughout the reserve. This site [37'29"E, 140'51"N] is 13 km south east of Penola and represents the most southerly record for the State. This species may occur in the higher rainfall Mount Burr Range Native Forest Reserves especially The Marshes, Honan and Mt McIntyre area NFR's where its food plant is relatively abundant and undisturbed.

Acknowledgements
Kelvyn Dunn for providing comments on a draft of this paper and for access to information from the Dunn and Dunn butterfly database for *L. limbaria* and *C. acasta*. Roger Grund for providing historic records of *O. lathoniella hercens* and comments on a draft of this paper.

References

BACHMANN, M. (2002). *Silky Tea-tree and Cutting Grass Wetland Rehabilitation Project Summary 1999-2002.* Nature Conservation Society of South Australia, Adelaide, 176 pp.

BRABY, M.F. (2000). *Butterflies of Australia.* Vols I & II. CSIRO Publishing, Melbourne; 976 pp.

FISHER, R.H. (1978). *Butterflies of South Australia – Lepidoptera : Hesperioidea, Papilionoidea.* Government Printer, Adelaide.

FISHER, R.H. and WATTS, C.H.S. (1994). Recovery plan for The Sword-grass Brown Butterfly (Tisphone abeona antoni) in South Australia. Report prepared for the Australian Nature Conservation Agency, SA Museum (Adelaide).

GRUND, R. (1997). A List of Butterflies in the Kath Alcock Collection from the South-East Region of South Australia. *Victorian Entomologist.* **27 (4),** pp68-70.

GRUND, R. (2006). *Butterflies of South Australia website* (www.chariot.net.au/~rgrund) Accessed on 27 March 2006, last updated 8 May 2002.

GRUND, R. and HAYWOOD, B.T. (2005). The Distribution and Conservation Status of the Sword-Grass Brown (*Tisiphone abeona*) in the Lower South East Region of South Australia. *Victorian Entomologist.* **35 (1),** pp10-15.

GRUND, R. and HUNT, L. (2000). *Butterfly Conservation in the Lower South East Region.* National Parks Foundation Inc, Adelaide.

SANDS, D.P.A. and NEW, T.R. (2002). *The Action Plan for Australian Butterflies.* Environment Australia, Canberra 378 pp.

A Rediscovered Type *Neumichtis mesophaea* (Hampson, 1906) Lepidoptera Noctuidae

Peter Marriott: marriott @ netlink.com.au

One hundred years ago, this year, George Hampson at the British Museum was toiling away on his massive work on the world's Noctuidae. Some species were figured and each had a description either from previously published material or written by himself. In 1906 Volume 6 was published containing descriptions. Coloured plates were bound separately.

At Volume 13 the Great War intervened and the economics of the time forced the publications to stop with 13 sequential and two supplementary volumes printed. Manuscripts were prepared for further publishing but money was not available until after Hampson's retirement when further material was published in several supplementary volumes by the British Museum.

One hundred years later, toiling away in the Melbourne museum collection through a confusing mass of Noctuidae, I began to register a type labelled *Neumichtis mesophaea* Turner. This was confusing as the Checklist of Australian Lepidoptera gave the name as *Neumichtis mesophaea* (Hampson, 1906) A quick check of Turners papers did not reveal the species. However, a check of the Hampson Volume 6 was more fruitful. *Neumichtis mesophaea* Hampson was described on page 343 of volume 6 and illustrated on coloured plate CIV fig.15. This supported the Checklist's assertion.

But what of the Turner name? Hampson's reference at the top of his description states: '*Neumichtis mesophaea*, Turner, ined'. 'ined' is the abbreviation for the Latin 'ineditus', meaning 'unpublished'. So Hampson is saying that Turner sent him the specimen (he must have sent it for Hampson to illustrate it) with a proposed name but that Turner had not described it.

But where was the type? What Hampson did not say was what happened to the illustrated specimen. Was it retained in the British Museum or returned to Turner. The Hampson description gives the following information: '*Hab.* VICTORIA, Beaconsfield (*Lyell*), type (male) in Coll. Drake'. Dr. W.E. Drake lived at Beaconsfield at that time and he and Lyell exchanged material. The label on the 'Turner' type carries the same information. In the quest for a full checklist of Australian Lepidoptera, ANIC in Canberra photographed every type – a huge task. Ted Edwards (pers. com) says that they were unable to locate the type in the British Museum and, given the inscription and the label data, the Melbourne specimen (Fig.1) would certainly be the Hampson type.

Being able to look at a type is essential in identifying any species. With the diversity of similar insects such as moths, without the type specimen things can be a bit shaky. With Australian types spread through Europe and various places in Australia, being able to locate a lost one is good news.

Acknowlegements and References

Hampson G.F., British Museum, 1906, *Catalogue of the Lepidoptera Phalaenae in the British Museum. 6. Catalogue of the Noctuidea in the Collection of the British Museum* Vol. 6, page 343

E.D. Edwards, CSIRO, 1996, Noctuidae Chapter of *Checklist of Australian Lepidoptera.*

Thanks are expressed to Ted Edwards (ANIC, Canberra) for his insights and advice on the material in this article, to Ken Walker (Melbourne Museum) for his encouragement and advice and to Peter Lilywhite in his help in tracking down the relevant publications.

Fig. 1. Rediscovered Type *Neumichtis mesophaea* (Hampson, 1906).

REVIEW OF AUSTRALIAN BUTTERFLIES

Annotated Version

KL DUNN & LE DUNN

CD-ROM **$35** (includes postage and handling)

The atlas set, 'Dunn & Dunn 1991', has become a landmark publication in the history of Australian butterfly collecting. Although long out of print, continued requests for copies have resulted in it now being made available as a single compilation on CD.

- Embeds the original text as PDF files, incorporating all original charts and map figures, as well as extras re-compiled from the original data set (more than 960 figures, mostly in colour).
- Enhanced by annotations: documentation of errors, programming and project history, methodology, data representativeness and other background information.
- Easy to search text using the platform tool bars – maps can be 'cut and pasted' if required.
- Requirements: **Acrobat Reader 5 or above, Windows 98, ME or XP operating systems. May not auto-load on some systems (eg. 98 & ME) but can be loaded manually from Windows Explorer or similar file systems.**

No regular user of the original work can afford to be without this annotated digital version

PLEASE NOTE:

This is an annotated reprint of the 1991 original – it is not a field guide but a distributional species atlas. This CD-ROM as with the original volumes has not been peer reviewed. Published by the authors.

(Planned for release: September 2006 – check availability: kelvyn_dunn@yahoo.com)

.....

ORDER FORM

Name: .....

Address:.....

.....

Phone Number or email .....

Make cheque or money order payable to **KL Dunn**

81 Scenic Drive, BEACONSFIELD,

VIC 3807, AUSTRALIA

(Total Enclosed $30 for CD-ROM & $5 postage and handling)

OFFICE BEARERS

CONTRIBUTIONS TO THE *VICTORIAN ENTOMOLOGIST*

The Society welcomes contributions of articles, papers or notes pertaining to any aspect of entomology for publication in this Bulletin. Contributions are not restricted to members but are invited from all who have an interest. Material submitted should be responsible and original. The Editor reserves the right to have articles refereed. Statements and opinions expressed are the responsibility of the respective authors and do not necessarily reflect the policies of the Society.

Contributions may be typed on A4 paper or sent to the Hon. editor on an **IBM formatted disk in *Microsoft Word for Windows*** with an enclosed hard copy. The main text of the news bulletin is prepared in 8 point, *Book Antiqua* font. Contributions may *preferably* be E-mailed to Internet address: **suturalis@yahoo.com**

The deadline for each issue is the third Friday of each odd month.

The Society's Home Page on the World Wide Web is located at:

http://www.vicnet.net.au/~vicento/

ADVERTISING

The charge for advertising is $5.00 per half page.

The *Victorian Entomologist* is printed at Minuteman Press Melbourne, 337 Little Lonsdale Street Melbourne, 3000, Telephone 03 9670 4533

CONTENTS

DIARY OF COMING EVENTS

Friday 20 October 8pm

Excursion to Arthur Rylah Research Institute,

Corner of Brown Street and Stradbroke Avenue, Heidelberg. Melway 31 K3.

Refer to page 75 for details.

Friday 17 November 2006 Council Meeting

Friday 8 December 2006
Members' Night

Scientific names contained in this document are *not* intended for permanent scientific record, and are not published for the purposes of nomenclature within the meaning of the *International Code of Zoological Nomenclature*, Article 8(b). Contributions may be refereed, and authors alone are responsible for the views expressed.

ISSN 0310 – 6780